



## Description and Rating

## DIODE-PENTODE

The 105 is a miniature diode sharp-cutoff pentode designed for use as a combined detector, audio-frequency amplifier, and automatic-volume-control tube in compact, battery-operated receivers. The diode section is effectively shielded from the pentode section to reduce feed-through effects.

## GENERAL

Cathode - Coated Filament			
Filament Voltage, D-C	1.4	Volts	
Filament Current	0.05	Ampere	
Envelope - T-5½, Glass			
Base - E7-1, Miniature Button 7-Pin			
Mounting Position - Any			

Direct Interelectrode Capacitance		With Shield*	Without Shield	
Diode Plate to Grid-Number 1, maximum	0.04	0.04	$\mu\text{f}$	

## MAXIMUM RATINGS

## DESIGN-CENTER VALUES

Plate Voltage	90	Volts	
Screen Voltage	90	Volts	
Positive D-C Grid-Number 1 Voltage	0	Volts	
Negative D-C Grid-Number 1 Voltage	50	Volts	
D-C Cathode Current	3.0	Milliamperes	
Diode Current for Continuous Operation	0.25	Millampere	

## CHARACTERISTICS AND TYPICAL OPERATION

 CLASS A<sub>1</sub> AMPLIFIER

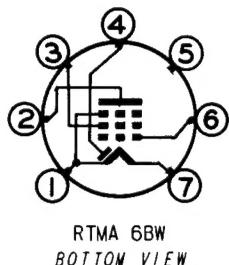
Plate Voltage	67.5	Volts	
Screen Voltage	67.5	Volts	
Grid-Number 1 Voltage	0	Volts	
Plate Resistance, approximate	0.6	Megohm	
Transconductance	625	Micromhos	
Plate Current	1.6	Milliamperes	
Screen Current	0.4	Millampere	
Grid-Number 1 Voltage, approximate, $I_b = 10$ Microamperes	-5	Volts	
Average Diode Current			
With 10 Volts D-C Applied	1.5	Milliamperes	

\* With external shield (RTMA 316) connected to pin 1.

\* The diode is located at the negative end of the filament.

Note: All voltages are referred to the negative terminal of the filament.

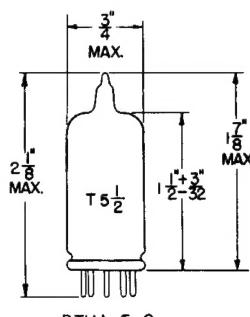
## BASING DIAGRAM


 RTMA 6BW  
 BOTTOM VIEW

## TERMINAL CONNECTIONS

Pin 1	- Negative Filament and Grid Number 3
Pin 2	- Plate
Pin 3	- Grid Number 2 (Screen)
Pin 4	- Diode Plate +
Pin 5	- No Connection
Pin 6	- Grid Number 1
Pin 7	- Positive Filament

## PHYSICAL DIMENSIONS



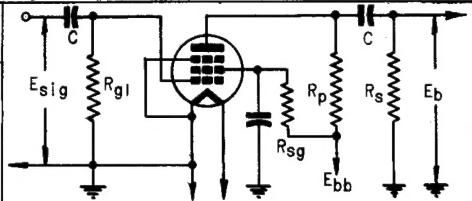
RTMA 5-2

GENERAL ELECTRIC

## CLASS A RESISTANCE-COUPLED AMPLIFIER

Rp Meg.	Rs Meg.	Rg1 Meg.	Ebb = 45 Volts				Ebb = 90 Volts				Ebb = 135 Volts			
			Rk	Rsg	Gain	Eo	Rk	Rsg	Gain	Eo	Rk	Rsg	Gain	Eo
0.24	0.24	10	-	0.5	18	6.4	-	0.8	29	13	-	1.0	38	20
0.24	0.51	10	-	0.5	24	8.0	-	0.9	38	15	-	1.1	40	25
0.24	1.0	10	-	0.6	28	8.4	-	1.0	45	17	-	1.2	55	28
0.51	0.51	10	-	1.1	25	5.9	-	1.9	40	12	-	2.3	52	19
0.51	0.75	10	-	1.2	29	6.5	-	2.0	46	13	-	2.0	61	22
0.51	1.0	10	-	1.4	32	6.6	-	2.2	51	14	-	2.5	65	22
0.75	0.75	10	-	1.9	29	5.1	-	2.9	47	11	-	3.2	61	18
0.75	1.0	10	-	2.0	32	5.2	-	3.0	52	11	-	3.4	67	18
1.0	1.0	10	-	2.7	31	4.3	-	3.9	50	9	-	4.6	66	15

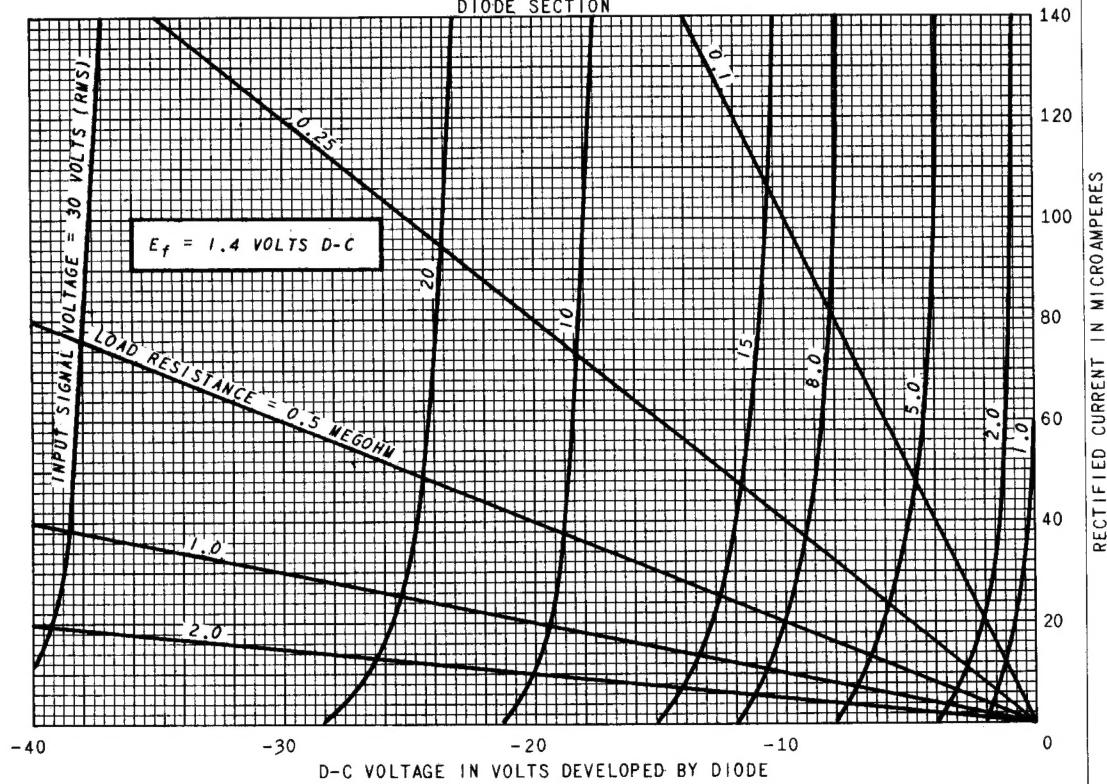
Notes: 1. Eo is maximum RMS voltage output for five percent (5%) total harmonic distortion. 2. Gain measured at 2.0 volts RMS output. 3. For zero-bias data, generator impedance is negligible.

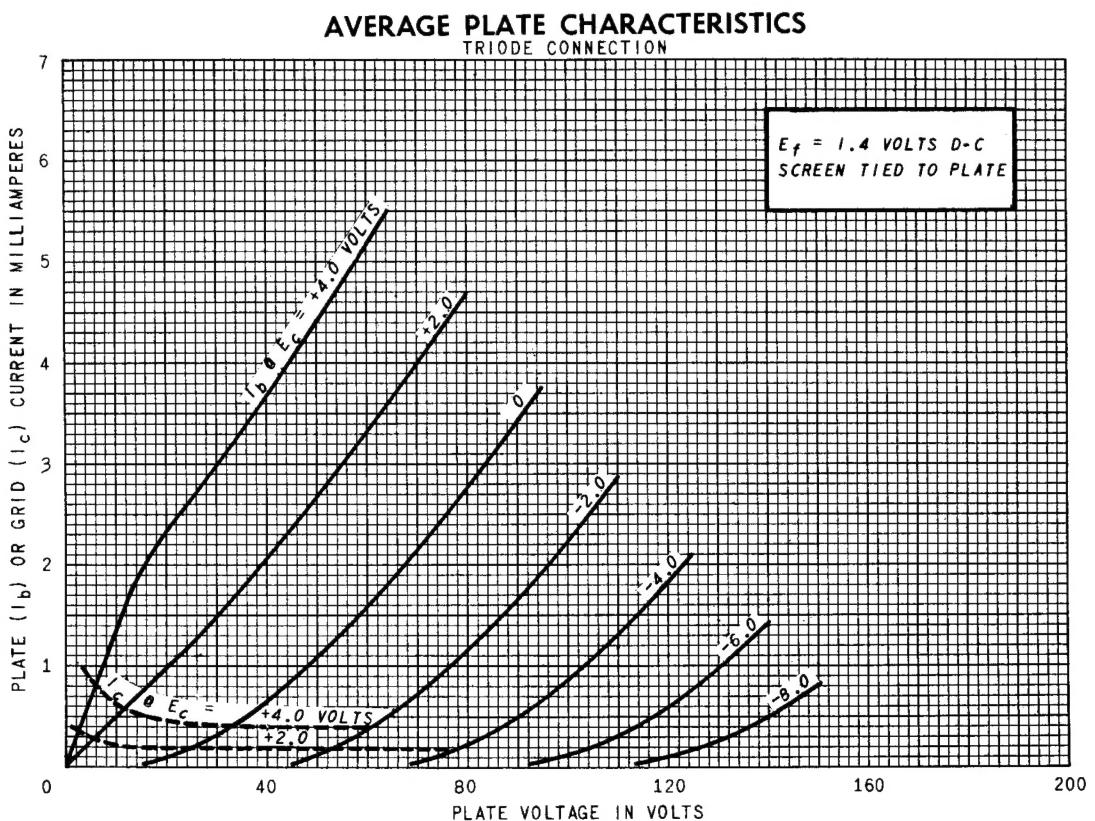
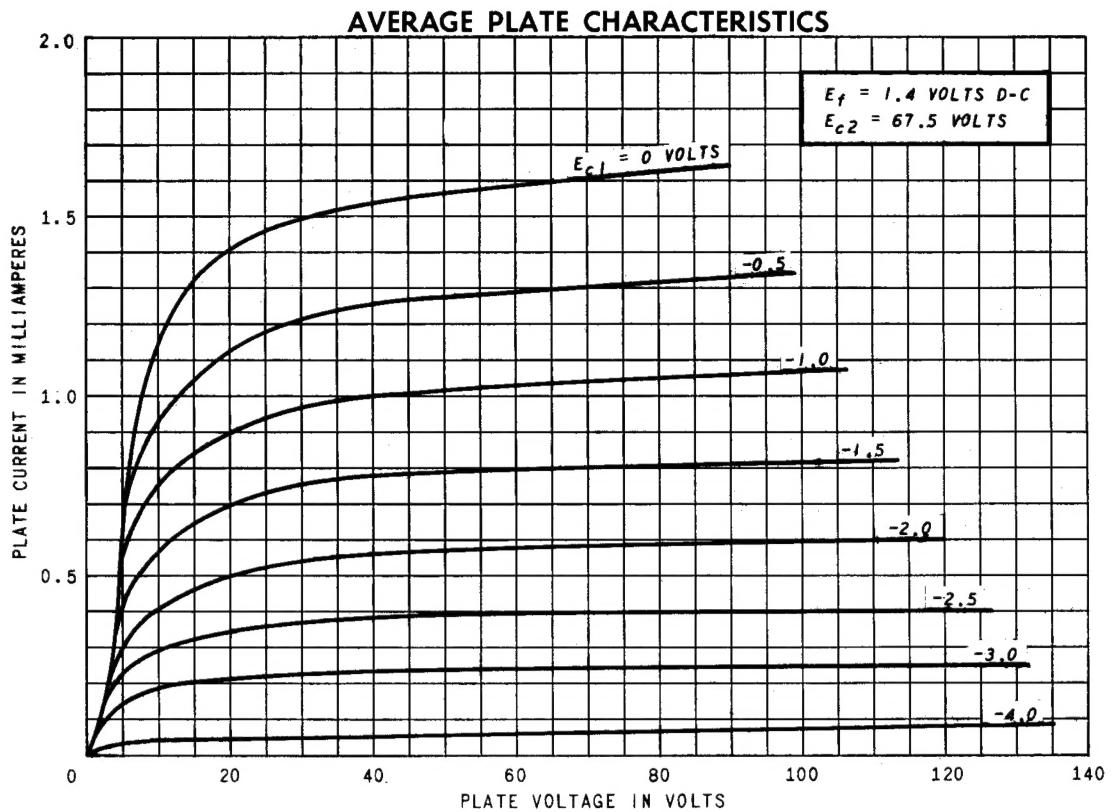


Note: Coupling capacitors (C) should be adjusted to give desired frequency response. R\_sg should be adequately bypassed.

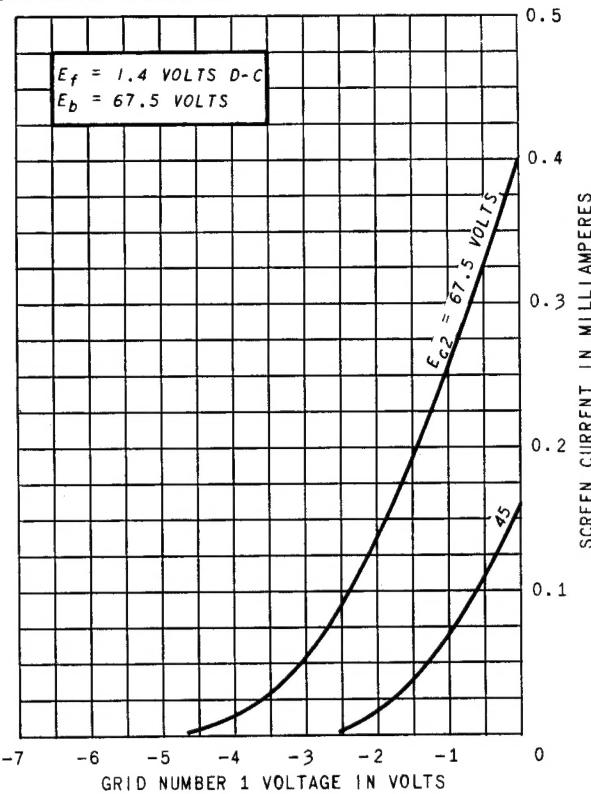
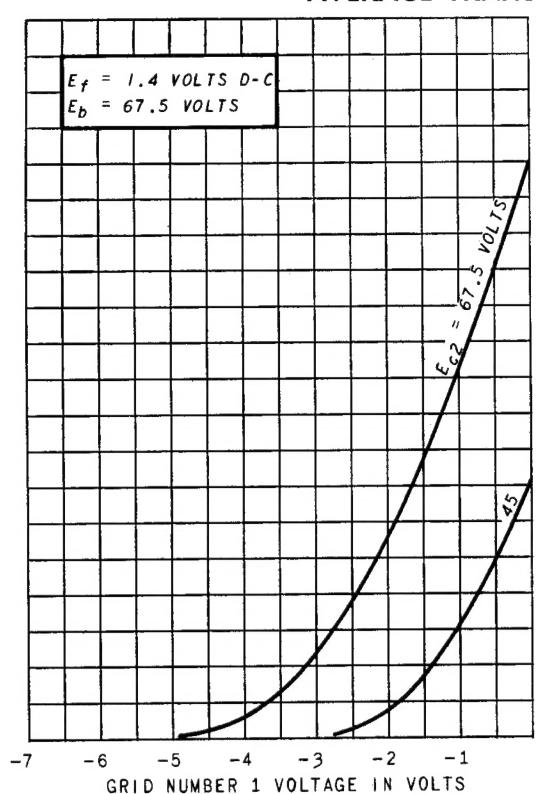
## OPERATION CHARACTERISTICS

## DIODE SECTION

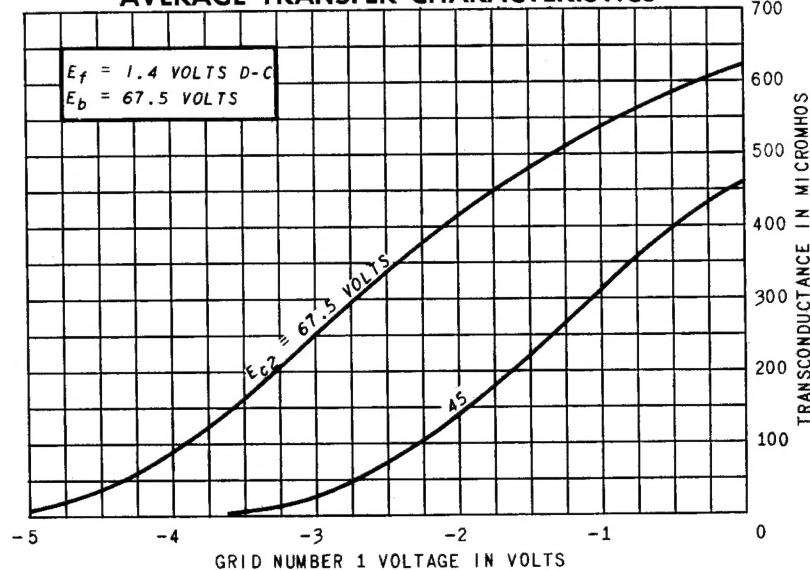




## AVERAGE TRANSFER CHARACTERISTICS



## AVERAGE TRANSFER CHARACTERISTICS



TUBE DEPARTMENT

GENERAL  ELECTRIC

Schenectady 5, N. Y.